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(54) Title: AMPHOTERIC FLUORESCENT WHITENING AGENTS

(57) Abstract: The present invention provides novel bis-triazinylaminostilbene amphoteric fluorescent whitening agents, comprising both individual components and mixtures thereof, a process for their preparation, intermediates useful for their preparation and use of the fluorescent whitening agents for the fluorescents whitening of paper.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C11D3/42	D21H21/30	C09K11/06	C07D251/68	D06L3/12
C07D251/50	C07D251/54	D06M13/358		

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C11D D21H C09K C07D D06L D06M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, CHEM ABS Data, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 850 934 A (CIBA GEIGY AG) 1 July 1998 (1998-07-01) claims 1-6; example 3 -----	1-3
Y	US 6 165 973 A (BAKER RICHARD LEON) 26 December 2000 (2000-12-26) claims 9,10,13,14,18; example 1 -----	6,12,15
Y	US 5 976 410 A (ROHRINGER PETER ET AL) 2 November 1999 (1999-11-02) claim 1; example 9 -----	6,12,15
A	US 5 976 410 A (ROHRINGER PETER ET AL) 2 November 1999 (1999-11-02) claim 1; example 9 -----	1-3,6
A	WO 02/055646 A (CLARIANT INT LTD ;TINDAL ALEC STEWART (GB); FARRAR JOHN MARTIN (GB) 18 July 2002 (2002-07-18) claims 1,2 -----	1-3,6

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
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- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the International search

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 03/12583

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-3, 6, 12, 15(part)

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
 No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-3, 6, 12, 15 (part)

Fluorescent whitening agent comprising a mixture of the compounds (1a), (1b), (1c), or (1d), (1e), (1f), or (1d), (1g), (1h) as disclosed in claims 1-3; a process for the preparation of a mixture of the compounds (1a), (1b), (1c) as disclosed in claim 1; use of the mixture of the compounds (1a), (1b), (1c) for the fluorescent whitening of paper; and paper, which has been treated with a fluorescent whitening agent comprising a mixture of the compounds (1a), (1b), (1c).

2. claims: 4, 7, 13, 15 (part)

A compound of the formula (2) as disclosed in claim 4 and method of its preparation as disclosed in claim 7; use of a compound of formula (2) for the fluorescent whitening of paper; and paper, which has been treated with a fluorescent whitening agent comprising a compound of formula (2).

3. claims: 5, 8

A compound of the formula (3) as disclosed in claim 5 and method of its preparation as disclosed in claim 8.

4. claims: 9-11

A compound of the formula (4a) or a mixture comprising compounds of the formulae (4a), (4b) or (4c) as disclosed in claim 9 and method of their preparation as disclosed in claim 10; use of a compound of the formula (4a) for the preparation of a compound of formula (2).

5. claims: 14, 15 (part)

Use of a compound of formula (5) as disclosed in claim 14 for the fluorescent whitening of paper; paper, which has been treated with a fluorescent whitening agent comprising a compound of formula (5).

Information on patent family members

Final Application No

EP 03/12583

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
EP 0850934	A	01-07-1998	AU AU BR CN DE EP GB ID JP NZ US ZA	739556 B2 4925697 A 9705635 A 1191861 A ,B 69728026 D1 0850934 A1 2320714 A 19234 A 10182622 A 329433 A 5945396 A 9711567 A		18-10-2001 25-06-1998 18-05-1999 02-09-1998 15-04-2004 01-07-1998 01-07-1998 28-06-1998 07-07-1998 29-04-1999 31-08-1999 24-06-1998
US 6165973	A	26-12-2000	AU AU BR WO EP JP NZ	768659 B2 2905800 A 0008011 A 0046336 A1 1149147 A1 2002536501 T 513712 A		18-12-2003 25-08-2000 20-11-2001 10-08-2000 31-10-2001 29-10-2002 28-09-2001
US 5976410	A	02-11-1999	AT AU AU BR CA CN DE EP ES ID JP PT ZA	253616 T 734192 B2 4095797 A 9704998 A 2217911 A1 1180719 A ,B 59710955 D1 0835906 A2 2208855 T3 18530 A 11043621 A 835906 T 9709051 A		15-11-2003 07-06-2001 23-04-1998 10-11-1998 10-04-1998 06-05-1998 11-12-2003 15-04-1998 16-06-2004 16-04-1998 16-02-1999 31-03-2004 14-04-1998
WO 02055646	A	18-07-2002	BR CA CN EP WO NO US	0206355 A 2426776 A1 1484691 T 1352046 A1 02055646 A1 20031970 A 2004074021 A1		23-12-2003 18-07-2002 24-03-2004 15-10-2003 18-07-2002 10-07-2003 22-04-2004